

**Dallas to Houston High-Speed Rail
Draft Environmental Impact Statement**

**Appendix G:
Dallas to Houston High-Speed Rail
Passenger Service from Houston to Dallas
Final Draft Conceptual Engineering
Plans and Details
Set 21 of 21**



**TEXAS
CENTRAL**

Transmittal

To	Megan Inman, AECOM	Date	November 17, 2017
Copies	FRA: K. Wright AECOM: J. Smiley TCRR: A. Greer File: HOU TCR	TRA Number	00211
From	Christopher Taylor, Arup		
Subject	FINAL DRAFT CONCEPTUAL ENGINEERING DESIGN DOCUMENTATION – FDCE v7 Transmittal Final Version for Publication with Draft Environmental Impact Statement (DEIS) FDCE for Public Release		

We Are Sending You: ENTER DOCUMENT TYPE CODE(S) ONLY

Date of Document	DEIS Appendix	Set # of #	Title of Document or Drawing Title
11/17/17	-	-	234180-AFN-TRA-00211 FDCEv7.PDF (this transmittal)
REPORTS			
9/15/17	F	1 of 2	TCRR FDCE v7 REPORT.PDF (<i>Final Draft Conceptual Engineering Report v7 – Project Definition for publication with Draft EIS</i>)
9/15/17	F	2 of 2	TCRR CONSTRUCTABILITY v4 REPORT.PDF
TCRR FDCE v7 DWGS VOLUME 1 (General Sheets and Typical Sections)			
9/15/17	G	1 of 21	TCRR FDCE v7 DWGS VOLUME 1.PDF (<i>General Sheets and Typical Sections</i>)
TCRR FDCE v7 DWGS VOLUME 2 (Railway Alignment Plan and Profile Sheets)			
9/15/17	G	2 of 21	TCRR FDCE v7 DWGS VOLUME 2-1.PDF (<i>Houston Segment</i>)
9/15/17	G	3 of 21	TCRR FDCE v7 DWGS VOLUME 2-2.PDF (<i>West of Teague Segment</i>)
9/15/17	G	4 of 21	TCRR FDCE v7 DWGS VOLUME 2-3.PDF (<i>IH-45 Segment</i>)
9/15/17	G	5 of 21	TCRR FDCE v7 DWGS VOLUME 2-4.PDF (<i>Navarro West Segment</i>)
9/15/17	G	6 of 21	TCRR FDCE v7 DWGS VOLUME 2-5.PDF (<i>Navarro East Segment</i>)
9/15/17	G	7 of 21	TCRR FDCE v7 DWGS VOLUME 2-6.PDF (<i>Ellis West Segment</i>)
9/15/17	G	8 of 21	TCRR FDCE v7 DWGS VOLUME 2-7.PDF (<i>Ellis East Segment</i>)
9/15/17	G	9 of 21	TCRR FDCE v7 DWGS VOLUME 2-8.PDF (<i>Dallas Segment</i>)
TCRR FDCE v7 DWGS VOLUME 3 (Stations, Maintenance Facilities, and Railway Systems Sheets)			
9/15/17	G	10 of 21	TCRR FDCE v7 DWGS VOLUME 3-1.PDF (<i>Stations</i>)
9/15/17	G	11 of 21	TCRR FDCE v7 DWGS VOLUME 3-2.PDF (<i>Maintenance Facilities, Yards and Shops</i>)
9/15/17	G	12 of 21	TCRR FDCE v7 DWGS VOLUME 3-3.PDF (<i>Rail Systems</i>)
TCRR FDCE v7 DWGS VOLUME 4 (Roadway Plan Sheets)			
9/15/17	G	13 of 21	TCRR FDCE v7 DWGS VOLUME 4-1.PDF (<i>Houston Segment</i>)
9/15/17	G	14 of 21	TCRR FDCE v7 DWGS VOLUME 4-2.PDF (<i>West of Teague Segment</i>)
9/15/17	G	15 of 21	TCRR FDCE v7 DWGS VOLUME 4-3.PDF (<i>IH-45 Segment</i>)
9/15/17	G	16 of 21	TCRR FDCE v7 DWGS VOLUME 4-4.PDF (<i>Navarro West Segment</i>)
9/15/17	G	17 of 21	TCRR FDCE v7 DWGS VOLUME 4-5.PDF (<i>Navarro East Segment</i>)

Document Format	Date of Document	Number of Copies	Title of Document or Drawing Title
9/15/17	G	18 of 21	TCRR FDCE v7 DWGS VOLUME 4-6.PDF (<i>Ellis West Segment</i>)
9/15/17	G	19 of 21	TCRR FDCE v7 DWGS VOLUME 4-7.PDF (<i>Ellis East Segment</i>)
9/15/17	G	20 of 21	TCRR FDCE v7 DWGS VOLUME 4-8.PDF (<i>Dallas Segment</i>)
			TCRR FDCE v7 DWGS VOLUME 5 (<i>Wildlife Crossing Sheets</i>)
9/15/17	G	21 of 21	TCRR FDCE v7 DWGS VOLUME 5.PDF (<i>Wildlife Crossing Sheets</i>)

These are transmitted as checked below:

- Deliverable For Information As requested For your use
 For approval For Review and Comment Return Other: Publication with DEIS

REMARKS:

The files transmitted herewith represent a final submittal of the Final Draft Conceptual Engineering (FDCE) design report and drawings for the Dallas to Houston High-Speed Rail Project. This v7 submittal of the FDCE report is intended for distribution on the FRA website with the Draft EIS (DEIS) for public review.



Delivered VIA Outlook Email Hand Delivery Courier PMS Notification USPS

PREPARED BY: Christopher Taylor **Date:** November 17, 2017

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE.



**TEXAS
CENTRAL**



DALLAS TO HOUSTON HIGH-SPEED RAIL
PASSENGER SERVICE FROM HOUSTON TO DALLAS

**FINAL DRAFT
CONCEPTUAL ENGINEERING PLANS AND DETAILS**
VOLUME 5 - WILDLIFE CROSSING SHEETS

SEPTEMBER 15, 2017



U.S. Department of Transportation
Federal Railroad Administration

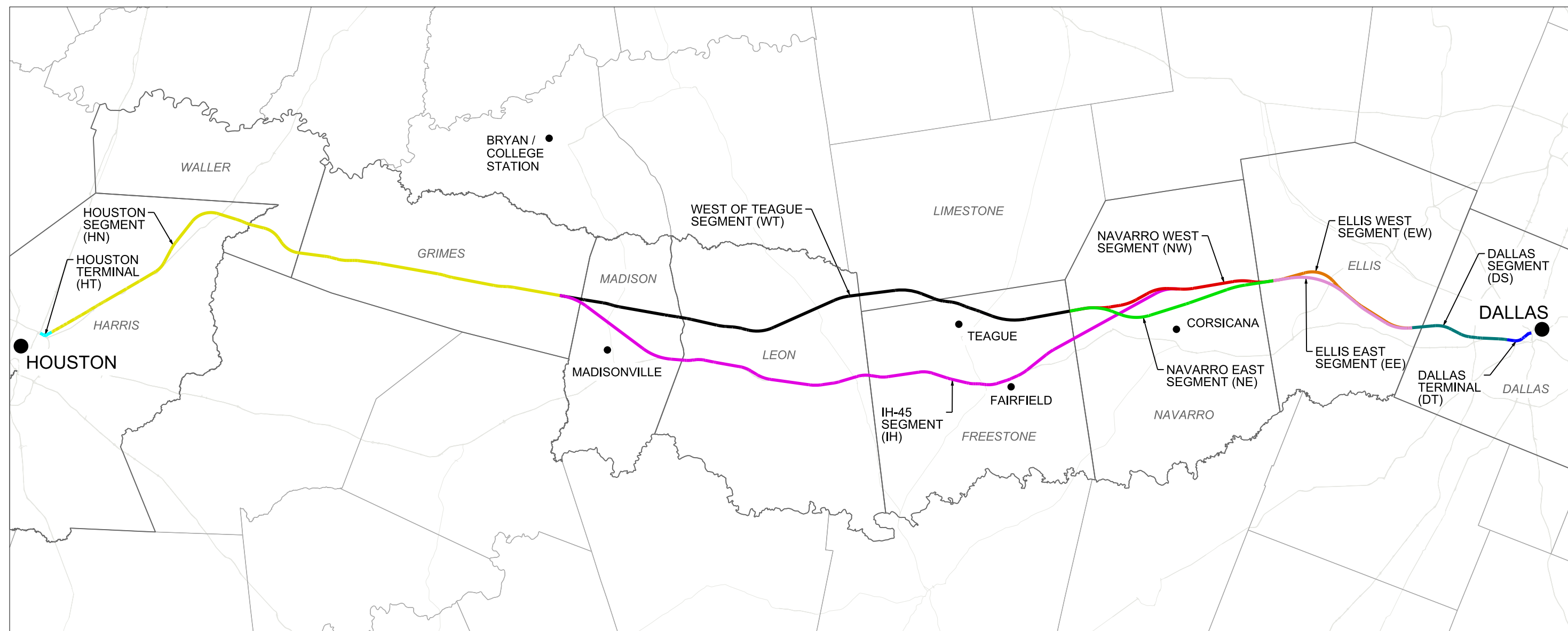
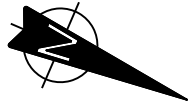
ARUP

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Texas Registered Engineering Firm: F-1990



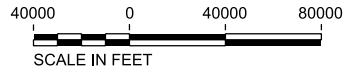
2711 North Haskell Ave., Suite 3300
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COVER SHEET



ALIGNMENT ALTERNATIVE	OE SEGMENT ID	SEGMENT NAMES	SEGMENT ABBREVIATION
A	5, 4A, 3A, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NW, WT, HN
B	5, 4A, 3B, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NE, WT, HN
C	5, 4A, 2B, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EW, IH, HN
D	5, 4B, 3A, 2A, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NW, WT, HN
E	5, 4B, 3A, 2A, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NE, WT, HN
F	5, 4B, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EE, IH, HN

NOTES:
 1. REFER TO FDCE v5 FOR SEGMENT NAMES AND ALIGNMENT ALTERNATIVES.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
D. THOMPSON

DRAWN BY
D. THOMPSON

CHECKED BY
R. BURNS

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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Client
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL LOCATION PLAN

Scale AS SHOWN		
Drawing Status FINAL DRAFT		
Job No 234180	Drawing No GEN-00-00002	Rev 01

VOLUME 1 - GENERAL SHEETS & TYPICAL SECTIONS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections: 1-1 GENERAL COVER SHEET, 1-2 RAILWAY TYPICAL SECTIONS, 1-3 ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS, 1-4 CIVIL STRUCTURES TYPICAL DETAILS, 1-5 CIVIL UTILITIES TYPICAL DETAILS, 1-6 GENERAL - ALIGNMENT CURVE DATA TABLES.

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section: 2-1 HOUSTON SEGMENT. Lists drawing numbers and descriptions for Houston Segment alignment and profile sheets.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for Houston Segment alignment and profile sheets, continuing from Volume 2.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for West of Teague Segment alignment and profile sheets.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for the drawing.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Design and drawing information table.



Table with columns: Client, Drawing Title, Scale, Drawing Status, Job No, Drawing No, Rev. Project information table.

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections for 2-2 WEST OF TEAGUE SEGMENT and 2-3 IH-45 SEGMENT.

Table with columns: Drawing No., Description. Lists various drawing numbers and their corresponding descriptions for segments like IH-45 SEGMENT and NAVARRO WEST SEGMENT.

Table with columns: Drawing No., Description. Lists various drawing numbers and their corresponding descriptions for segments like NAVARRO WEST SEGMENT and ELLIS WEST SEGMENT.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for the drawing.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Designer information table.



Table with columns: Drawing Title, Scale, Drawing Status, Job No, Drawing No, Rev. Project information table.

HOUSTON SEGMENT - CIVIL - KEY MAP - Sheet 2 of 4 - HN1 1024+00 TO HN1 2082+00

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for segments 2-6, 2-7, and 2-8.

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for stations and maintenance facilities.

Table with columns: Drawing No., Description. Lists drawing numbers and descriptions for various station and maintenance facility sheets.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a revision table and a design information table with fields for Designer, Drawn, Checked, In Charge, and Date.



Drawing Title: GENERAL INDEX SHEET 3 OF 5

Table with columns: Scale, Drawing Status, Job No, Drawing No, Rev. Scale: NO SCALE. Drawing Status: FINAL DRAFT. Job No: 234180. Drawing No: GEN-00-00005. Rev: 01.

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Includes sections for 3-2 MAINTENANCE FACILITIES, YARDS AND SHOPS and 3-3 RAILWAY SYSTEMS.

VOLUME 4 - ROADWAY PLAN SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Includes section for 4-1 HOUSTON SEGMENT with numerous drawing entries.

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Includes sections for 4-2 WEST OF TEAGUE SEGMENT and 4-3 IH-45 SEGMENT with numerous drawing entries.

Table with 6 columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a grid for revision tracking.

Table with 2 columns: Field Name and Value. Includes fields for DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, and DATE.

ARUP logo and contact information: Arup Texas, Inc., 10370 Richmond Ave., Suite 475, Houston, Texas 77042 USA.

FRESE & NICHOLS logo and contact information: 2711 North Haskell Ave., Suite 3300, Dallas, Texas 75204.

Client logo: TEXAS CENTRAL with a map of Texas and address: 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215.

Drawing Title: GENERAL INDEX SHEET 4 OF 5. Includes Job No (234180) and Drawing No (GEN-00-00006).

Scale: NO SCALE. Drawing Status: FINAL DRAFT. Includes Job No, Drawing No, and Rev (01).

PLOT TIME: 9/25/2017 5:42:37 PM

PLOT BY: MYPWCS01S

VOLUME 4 - ROADWAY PLAN SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 1H-45 SEGMENT and 4-4 NAVARRO WEST SEGMENT.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 4-5 NAVARRO EAST SEGMENT, 4-6 ELLIS WEST SEGMENT, 4-7 ELLIS EAST SEGMENT, and 4-8 DALLAS SEGMENT.

VOLUME 5 - WILDLIFE CROSSING SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 5-1 WILDLIFE CROSSING TYPICAL SECTIONS.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION.

DESIGNED BY D. THOMPSON
DRAWN BY D. THOMPSON
CHECKED BY R. BURNS
IN CHARGE C. TAYLOR
DATE 09/15/2017



Client
Drawing Title: GENERAL INDEX SHEET 5 OF 5
Scale: NO SCALE
Drawing Status: FINAL DRAFT
Job No: 234180
Drawing No: GEN-00-00007
Rev: 01

PLOT TIME: 9/25/2017 5:41:28 PM

GENERAL NOTES:

1. THESE DRAWINGS ACCOMPANY FINAL DRAFT CONCEPTUAL ENGINEERING REPORT (FDCE) V7 REPORT DATED SEPTEMBER 15, 2017.
2. DRAWING SET INCLUDES FIVE (5) VOLUMES.
3. CONCEPTUAL ENGINEERING WAS DEVELOPED TO IDENTIFY PROJECT LIMIT OF DISTURBANCE (LOD), OR "PROJECT FOOTPRINT". CONCEPTUAL ENGINEERING DRAWINGS AND FDCE REPORT ARE ISSUED TO PROVIDE PROJECT DEFINITION FOR ENVIRONMENTAL ANALYSES ONLY. FINAL DESIGN WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSES, NOT FOR CONSTRUCTION.
4. FOR STANDARD GENERAL ABBREVIATIONS, SEE DRAWING GEN-00-0009.
5. FOR STANDARD GENERAL SYMBOLS, SEE DRAWINGS GEN-00-0009.
6. "ORIGINAL GROUND" SHOWN ON PROFILES REFERS TO THE APPROXIMATE EXISTING GROUND LINE AT HSR CENTERLINE AS SHOWN ON PLAN AND PROFILE DRAWINGS.
7. ALL HORIZONTAL AND VERTICAL DISTANCES ARE IN US CUSTOMARY UNITS EXCEPT AS NOTED OTHERWISE.
8. GENERAL NOTES FOR PROJECT ELEMENTS INCLUDED ON GENERAL NOTES PAGES. REFER TO INDIVIDUAL DISCIPLINE DRAWINGS FOR ADDITIONAL NOTES.

BASEMAPPING NOTES:

1. DTM DATA SHOWN ON THE DRAWINGS WAS OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS) AND HOUSTON-GALVESTON AREA COUNCIL (HGAC).
 DALLAS COUNTY LIDAR, 2009, SOURCED FROM TNRIS.
 HGAC LIDAR, 2008.
 TNRIS LIDAR, 2009-2013.
 TNRIS STRATMAP CONTOURS, 1997.
2. LIDAR SOURCES WERE FILTERED TO SHOW ONLY BARE EARTH, AND SUPPLEMENTED BY CONTOUR DATA WHERE LIDAR SOURCES WERE NOT AVAILABLE.
3. NAD 83 HORIZONTAL CONTROL DATUM WAS USED FOR HORIZONTAL COORDINATE VALUES.
4. NAVD 88 VERTICAL DATUM WAS USED FOR ELEVATION VALUES.
5. ALL DATA HAS BEEN REPROJECTED TO TEXAS STATE PLANE, SOUTH CENTRAL, CENTRAL, AND NORTH CENTRAL ZONES, US SURVEY FEET.
6. AERIAL IMAGERY WAS OBTAINED FROM ARCGIS ONLINE SERVICES. SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRIID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
7. THE BACKGROUND IMAGERY ON THE PLAN SHEETS MAY SHOW BUILDINGS AND OTHER INFRASTRUCTURE FEATURES THAT HAVE SUBSEQUENTLY BEEN REMOVED AND/OR DEMOLISHED. WHERE IT HAS BEEN VERIFIED THAT BUILDINGS HAVE BEEN REMOVED, THE AERIAL IMAGERY ON THE PLAN SHEET IS MARKED WITH HATCHING.

LOD NOTES:

1. THE PROJECT LOD WAS DEVELOPED TO DEFINE A CONSERVATIVE ESTIMATE OF THE POTENTIAL "PROJECT FOOTPRINT" FOR ENVIRONMENTAL ANALYSIS AND DOES NOT REPRESENT THE FINAL HSR RIGHT-OF-WAY (ROW). PROPERTY WITHIN THE LOD MAY BE RETURNED TO ADJACENT LANDOWNERS OR OTHER PRIVATE PARTIES FOLLOWING PROJECT CONSTRUCTION OR MAY BE TRANSFERRED TO ROADWAY OR UTILITY AUTHORITY AS APPROPRIATE. PROPOSED PROJECT WORKS WITHIN PRIVATE PROPERTIES WOULD BE SUBJECT TO NEGOTIATION WITH LANDOWNERS. ANY TEMPORARY OR PERMANENT USE OF LAND OWNED BY TXDOT, COUNTY, MUNICIPAL, OR OTHER PUBLIC ENTITIES WOULD REQUIRE APPROPRIATE APPROVALS.
2. LOD USED FOR EIS ANALYSIS FOOTPRINT.

TRACK NOTES:

1. THE ALIGNMENT SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE CENTERLINE OF THE TWO-TRACK HSR MAINLINE TRACKS.
2. THE PROFILE SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE TOP OF THE LOWER RAIL THROUGH HORIZONTAL CURVES AND SPIRALS FOR THE TWO-TRACK HSR SYSTEM.
3. THE PROPOSED HSR SYSTEM INCLUDES TWO TRACKS WITH ADDITIONAL TRACKS AT STATIONS, MAINTENANCE OF WAY, AND TRAINSET MAINTENANCE FACILITIES, AS SHOWN ON DRAWINGS.
4. MAINLINE CROSSOVERS ARE PROVIDED AT THE ENTRANCE AND EXIT OF ALL STATIONS, MAINTENANCE OF WAY (MOW) FACILITIES, AND TRAINSET MAINTENANCE FACILITIES (TMFS).

PLAN AND PROFILE GENERAL NOTES:

1. SECTION TYPE DETAIL SHOWN ON PROFILE SHEETS REPRESENT A SIMPLIFIED SUMMARY OF THE MAJOR STRUCTURAL TYPE OF THE PROPOSED HSR. THE ACTUAL PLAN DIMENSIONS TAKE PRECEDENCE OVER THE SECTION TYPE IDENTIFIED IN PROFILE.
2. ALL EXISTING AND PROPOSED STRUCTURAL ELEMENTS SHOWN ARE BASED ON CONCEPTUAL ENGINEERING DESIGN AND AERIAL IMAGERY AND MAY BE REVISED BASED ON MORE ADVANCED SURVEY AND DESIGNS.
3. SEE SHEET GEN-00-00010 FOR A KEY TO INFORMATION SHOWN ON PLAN AND PROFILE DRAWINGS.
4. LIMITS OF SPECIAL TRACK WORK ARE INDICATED ON THE PLAN SHEETS. ADDITIONAL DETAILS FOR MAINTENANCE OF WAY FACILITIES AND TRAINSET MAINTENANCE FACILITIES ARE SHOWN ON THE VOLUME 3 DRAWINGS.

ROADWAY NOTES:

1. EXISTING ROADWAY LOCATIONS ARE APPROXIMATE BASED ON AERIAL MAPS.
2. PROPOSED ROADWAY WORKS, INCLUDING NEW ROADWAYS, RECONFIGURATION AND REALIGNMENTS OF EXISTING ROADWAYS, AND ROADWAY REMOVALS ARE CONCEPTUAL IN NATURE AND WERE DEVELOPED TO IDENTIFY GENERAL CONFIGURATION AND LOCATION FOR ENVIRONMENTAL IMPACT ANALYSES. ROADWAY WORKS WOULD BE DETAILED DURING FINAL DESIGN AND WOULD COMPLY WITH APPLICABLE STATE, CITY, COUNTY, OR LOCAL REQUIREMENTS.
3. SEE SHEET GEN-00-00011 FOR A KEY TO INFORMATION SHOWN ON ROADWAY PLAN DRAWINGS.
4. ROADWAY GEOMETRY IS BASED ON TXDOT ROADWAY DESIGN MANUAL. ROAD DESIGN SPEEDS MATCH EXISTING POSTED SPEED LIMITS OR MATCH DESIGN SPEED DETERMINED FROM TXDOT ROADWAY FUNCTIONAL CLASSIFICATION SPEED GUIDELINES, WHICHEVER IS GREATER.
5. SUPERELEVATION TRANSITION LENGTHS WERE NOT DETAILED IN ROADWAY APPROACH DESIGN.
6. SEE DRAWINGS CVL-00-03030 TO CVL-00-03036 FOR TYPICAL ROADWAY CROSS SECTIONS.
7. ROADWAY REMOVALS ARE NOT SHOWN ON RAIL PLAN AND PROFILE SHEETS. REFER TO ROADWAY PLAN SHEETS IN VOLUME 3 FOR ALL ROADWAY REMOVALS.
8. NOT ALL PRIVATE ROADS AND DRIVEWAYS ARE REPRESENTED ON THE RAIL PLAN AND PROFILE SHEETS.
9. THE CLEARANCE ENVELOPES SHOWN ON THE RAIL PLAN AND PROFILE SHEETS REPRESENT THE APPROXIMATE ROADWAY CLEARANCE ENVELOPE. THE BOTTOM OF THE CLEARANCE ENVELOPE REPRESENTS THE TOP OF THE ROADWAY PAVEMENT. CLEARANCE ENVELOPE DOES NOT INCLUDE ROADWAY STRUCTURAL ELEMENTS.
10. ROADWAY ELEVATIONS FOR ROADWAY OVER RAILWAY CROSSING DO NOT REPRESENT THE PROPOSED ROADWAY ELEVATION, BUT RATHER THE MINIMUM HEIGHT REQUIRED FOR CLEARANCES, INCLUDING ALLOWANCES FOR ROADWAY STRUCTURAL ELEMENTS. SEE FDCE REPORT FOR ADDITIONAL INFORMATION.
11. ROADWAY TYPICAL SECTIONS ACCOUNT FOR THE NECESSARY SPACE TO CONSTRUCT TEMPORARY ROADWAYS DURING CONSTRUCTION. CLOSE COORDINATION WITH ROADWAY AUTHORITIES, COMMUNITIES, AND EMERGENCY RESPONSE ENTITIES WOULD BE UNDERTAKEN DURING FINAL DESIGN AND CONSTRUCTION TO ENSURE ACCESS DURING THE CONSTRUCTION PHASE.
12. USE OF TXDOT RIGHT-OF-WAY FOR PERMANENT IMPROVEMENTS WILL REQUIRED THE APPROPRIATE APPROVAL FROM TXDOT.

TYPICAL SECTIONS NOTES:

1. SECTIONS ILLUSTRATE TYPICAL REQUIREMENTS TO GUIDE CONCEPTUAL ENGINEERING DESIGN DEVELOPMENT. LOCATION SPECIFIC CONDITIONS WOULD ESTABLISH REQUIREMENTS AT EACH LOCATION AND OVERALL WIDTH OF LIMIT OF DISTURBANCE WOULD VARY AS IDENTIFIED ON DIMENSION LINES AND IN NOTES.
2. OFFSET BETWEEN INFRASTRUCTURE ELEMENTS SUCH AS DISTANCE BETWEEN EMBANKMENT, FENCES, DRAINAGE SWALE, ACCESS ROAD, ETC. WOULD VARY BASED ON LOCAL REQUIREMENTS AND SITE SPECIFIC CONDITIONS.
3. TYPICAL ROADWAY DRAINAGE SYSTEM PROVIDED AS SHOWN IN TYPICAL SECTIONS. LOCATION SPECIFIC CONFIGURATION AND SIZE WOULD BE ADVANCED DURING MORE DETAILED DESIGN.
4. LOCATION SPECIFIC CONDITIONS WOULD DICTATE FENCING REQUIREMENTS.
5. EMBANKMENT HEIGHTS AND CUT DEPTHS VARY WITH SURROUNDING GRADE AND RAIL PROFILE ELEVATION.
6. CRASH BARRIERS NOT SHOWN. LOCATION SPECIFIC CONDITIONS WILL DICTATE CRASH BARRIER REQUIREMENTS TO ENSURE SAFETY AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS.
7. SUBSURFACE GROUND IMPROVEMENTS ARE NOT SHOWN AND WILL BE BASED ON SITE SPECIFIC REQUIREMENTS.
8. RAIL HEIGHT VARIES WITH SURROUNDING GRADE AND RAIL PROFILE. THE BOTTOM OF SUBBALLAST SHALL BE NO LESS THAN 2FT ABOVE 100 YEAR FLOODPLAIN.

UTILITIES NOTES:

1. REFER TO THE FDCE REPORT FOR A LIST OF MAJOR UTILITY CROSSINGS, THEIR ASSUMED SIZE, AND ASSOCIATED LOCATIONS ALONG THE ALIGNMENT.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL DRAFT CONCEPTUAL ENGINEERING REPORT.
3. NO FIELD SURVEYS HAVE BEEN CONDUCTED TO LOCATE AND VERIFY UTILITY LOCATIONS.
4. NOT ALL EXISTING UNDERGROUND UTILITIES HAVE BEEN SHOWN. REFER TO THE FDCE REPORT FOR MAJOR UTILITIES INCLUDED IN PROJECT MAPPING.
5. LOD NOT SHOWN FOR UTILITIES THAT ARE NOT IMPACTED BY THE ALIGNMENT. ONLY MAJOR UTILITIES THAT ARE PROTECTED, RELOCATED OR ELEVATED ARE SHOWN ON THE PLAN AND PROFILE VIEW. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS. UTILITY LODS FOR FUTURE PROPOSED CONNECTIONS TO TPSS FACILITIES ARE SHOWN.
6. FOR PARALLEL TRANSMISSION LINE CROSSINGS OVER NEW ELEVATED ROADWAYS, A LOD IS SHOWN ON THE PLAN ONLY. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS.
7. MANY UTILITY CONFLICTS ALONG THE HEMPSTEAD ROAD CORRIDOR IN HOUSTON WOULD BE RESOLVED DURING FINAL DESIGN. A CONTINUOUS LOD IS SHOWN ON THE DRAWINGS TO REPRESENT THAT UTILITIES WOULD BE RELOCATED ON ONE OR BOTH SIDES OF THE ROADWAY AS REQUIRED. ALL WORK WOULD BE COORDINATED WITH UTILITY PROVIDERS TO MINIMIZE IMPACTS AND COORDINATE WITH OTHER PLANNED UTILITY PROJECTS ALONG CORRIDOR.
8. FOR UTILITY WORK REQUIRED BY UTILITY COMPANIES, EACH UTILITY OWNER WOULD DEVELOP THE DESIGN IN ACCORDANCE WITH APPLICABLE DESIGN STANDARDS AND REGULATORY AGENCY REVIEW PROCESSES.

DRAINAGE NOTES:

1. PROPOSED DETENTION BASIN LOCATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE AND ARE INTENDED FOR PRELIMINARY PLANNING AND ENVIRONMENTAL IMPACT ANALYSIS PURPOSES ONLY. SITE SPECIFIC CONFIGURATIONS WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS.
2. EXISTING CULVERTS ARE NOT SHOWN.
3. PROPOSED TRACK AND ROADWAY STORMWATER DRAINAGE WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. REFER TO TYPICAL SECTION DRAWINGS FOR PROPOSED CONFIGURATIONS.
4. EXISTING STORMWATER FACILITIES ARE NOT SHOWN.
5. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) WATER QUALITY CRITERIA WOULD BE MET FOR STORMWATER RUNOFF AND PROTECTION OF EXISTING WATER RESOURCES.
6. CONSTRUCTION OF THE RAIL MAY REQUIRE THE RECONFIGURATION OF PONDS OR STOCK TANKS IMMEDIATELY ADJACENT TO THE RAIL CORRIDOR. IN CASES WHERE THE CURRENT DESIGN NECESSITATES A FULL RELOCATION OF THE POND, ALLOWANCES HAVE BEEN MADE WITHIN THE LOD. IN CASES WHERE THE FULL RELOCATION OF THE POND IS NOT REQUIRED UNDER THE CURRENT DESIGN, ADDITIONAL LANDOWNER NEGOTIATIONS WILL BE REQUIRED TO DETERMINE LAND OWNER PREFERENCES.

STRUCTURES GENERAL NOTES:

1. TYPICAL SECTIONS WERE DEVELOPED TO IDENTIFY GENERAL ARRANGEMENTS AND ALLOWANCES FOR STRUCTURAL ELEMENTS. TYPICAL SECTIONS WERE USED AS THE BASIS FOR DEVELOPMENT OF LOD FOR ENVIRONMENTAL ANALYSIS.
2. APPROXIMATE HSR VIADUCT AND BRIDGE STRUCTURE LIMITS AND DEPTHS ARE SHOWN ON THE PROFILES TO SUPPORT ENVIRONMENTAL IMPACT ANALYSIS. LIMITS OF STRUCTURES AND EMBANKMENTS WOULD BE REFINED DURING FINAL DESIGN.
3. PLAN AND PROFILE DRAWINGS DO NOT SHOW LIMITS OF STRUCTURES IN PLAN VIEW. SITE SPECIFIC STRUCTURAL DESIGN WOULD BE DEVELOPED DURING FINAL ENGINEERING IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. DESIGN OF FOUNDATIONS, ABUTMENTS, PIERS AND OTHER STRUCTURES WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSIS.
4. HSR PROFILE WAS DEVELOPED TO PROVIDE A MINIMUM 3FT VERTICAL CLEAR DISTANCE FROM ESTIMATED 100 YEAR FLOOD LEVEL TO BRIDGE SOFFIT FOR RIVER AND FLOODPLAIN CROSSINGS. FINAL DESIGN WOULD BE DEVELOPED TO MEET OR EXCEED THIS REQUIREMENT.
5. SPECIAL STRUCTURES WOULD BE REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS TO AVOID OR MITIGATE IMPACTS. THE CONSTRUCTABILITY REPORT IDENTIFIES SPECIAL STRUCTURE LOCATIONS. PLAN AND PROFILE DRAWINGS IDENTIFY ADDITIONAL LOD EXPECTED FOR CONSTRUCTION STAGING AND WORKING AREAS FOR SPECIAL STRUCTURES.

SYSTEMS GENERAL NOTES:

1. SYSTEMS SCHEMATICS, SHOWN ON SHEETS SYS-00-02000 THROUGH SYS-00-02005, SHOW LOCATIONS OF SYSTEMS FACILITIES THAT HAVE BEEN INCLUDED FOR EACH END-TO-END ALTERNATIVE.
2. AREA FOR SYSTEMS FACILITY SITES HAVE BEEN INCLUDED WITHIN THE PROJECT LOD. THESE AREAS ARE GENERICALLY CALLED OUT AS "RAIL SYSTEMS SITES" ON THE PLAN AND PROFILE SHEETS. REFER TO FDCE REPORT TO DETERMINE THE SPECIFIC FACILITY TYPE AT EACH INDIVIDUAL LOCATION.
3. TYPICAL LAYOUT PLANS FOR EACH OF THE SYSTEMS FACILITIES ARE INCLUDED IN SHEETS SYS-00-01000 THROUGH SYS-00-01002.
4. LOD DEVELOPED FOR ENVIRONMENTAL IMPACT ANALYSIS OF SYSTEMS SITES INCLUDED SPACE FOR A DRIVEWAY AND SPACE TO PARK A LIMITED NUMBER OF MAINTENANCE VEHICLES.
5. SYSTEMS BUILDINGS WOULD BE DETAILED DURING FINAL DESIGN TO CONSIDER SITE SPECIFIC CONDITIONS, BE CONTEXT SENSITIVE, AND MINIMIZE VISUAL IMPACT. THE RADIO MAST AT COMMUNICATION FACILITIES WOULD BE APPROXIMATELY 50FT (15M) ABOVE THE TOP OF RAIL ELEVATION.
6. TPSS WOULD BE CONNECTED TO THE NEAREST 138KV TRANSMISSION LINES DESIGNED BY UTILITY PROVIDER AND SUBJECT TO ENVIRONMENTAL REVIEW.

FACILITY NOTES:

1. PROPOSED HSR FACILITIES WOULD INCLUDE STATIONS AND ASSOCIATED PARKING GARAGES, MAINTENANCE OF WAY (MOW) FACILITIES, TRAINSET MAINTENANCE FACILITIES (TMF), AND RAILWAY SYSTEMS SITES, INCLUDING TRACTION POWER SUPPLY FACILITIES, SIGNAL HOUSES, AND COMMUNICATIONS HOUSES. LOCATIONS, LIMITS OF DISTURBANCE, AND AREAS SHOWN FOR THE VARIOUS PROPOSED FACILITIES ARE FOR PRELIMINARY PLANNING PURPOSES ONLY.
2. ALL FACILITIES WOULD BE POWERED FROM THE LOCAL UTILITY GRID.
3. ACCESS, SECURITY, AND UTILITY PROVISION REQUIREMENTS FOR ALL FACILITIES WOULD BE DETAILED DURING FINAL DESIGN.

CONSTRUCTION CONSIDERATION NOTES:

1. CONSTRUCTION REQUIREMENTS WERE CONSIDERED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING AND ARE DOCUMENTED IN THE PROJECT CONSTRUCTABILITY REPORT.
2. TEMPORARY CONSTRUCTION AREAS REQUIRED FOR CONSTRUCTION ACCESS, CONSTRUCTION STAGING, AND PRECASTING FACILITIES WERE IDENTIFIED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING. CONSTRUCTION STAGING AREAS AND PRECAST FACILITIES ARE INCLUDED IN THE PROJECT LOD.
3. SPECIAL STRUCTURES REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS ARE IDENTIFIED IN THE CONSTRUCTABILITY REPORT.
4. MEASURES REQUIRED TO MITIGATE NOISE, TRAFFIC, AND OTHER ENVIRONMENTAL IMPACTS WOULD BE IDENTIFIED THROUGH THE ENVIRONMENTAL ANALYSES. MORE DETAILED DESIGN INCLUDING DEVELOPMENT OF MAINTENANCE AND PROTECTION OF TRAFFIC AND OTHER CONSTRUCTION SPECIFIC PLANS AND PROCEDURES WOULD BE REQUIRED TO SECURE APPLICABLE PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY D. THOMPSON
DRAWN BY D. THOMPSON
CHECKED BY R. BURNS
IN CHARGE C. TAYLOR
DATE 09/15/2017



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Client
Drawing Title
GENERAL NOTES

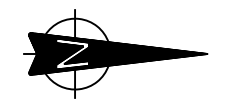
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Job No 234180	Drawing No GEN-00-00008	Rev 01

ABBREVIATIONS

LEGEND

ALT	ALTERNATE ALIGNMENT	TBD	TO BE DETERMINED TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
APPROX	APPROXIMATE	TCEQ	TEMPORARY TRAINSET MAINTENANCE FACILITY
ATP	AUTOTRANSFORMER POST	TEMP	TEMPORARY TRACTION POWER SUBSTATION
AVE	AVENUE	TMF	TANGENT SPIRAL
BLVD	BOULEVARD	TPSS	TYPICAL
BNSF	BURLINGTON NORTH SANTE FE RAILROAD	TS	TOP OF RAIL
BOT	BOTTOM	TYP	
		TOR	
CH	COMMUNICATION HOUSE	US	UNITED STATES, UNITED STATES HIGHWAY
CO RD	COUNTY ROAD	UPRR	UNION PACIFIC RAILROAD
CL	CENTERLINE		
C	CENTERLINE	VAR	VARIABLE
CO	COUNTY	VERT, V	VERTICAL
CR	COUNTY ROAD	WB	WESTBOUND
CS	CURVE TO SPIRAL	WT	WEST OF TEAGUE
CVL	CIVIL	XING	CROSSING
DIA	DIAMETER	YR	YEAR
DIST	DISTANCE, DISTRICT		
DR	DRIVE		
DRG	DRAWING		
DS	DALLAS SEGMENT		
DSN	DALLAS SEGMENT NORTH		
DSS	DALLAS SEGMENT SOUTH		
DT	DALLAS TERMINUS SEGMENT		
DWY	DRIVEWAY		
Ea	ACTUAL SUPERELEVATION		
EE	ELLIS EAST SEGMENT		
ELECT	ELECTRIC		
ELEV	ELEVATION		
EMB	EMBANKMENT		
ENGR	ENGINEER		
EPA	ENVIRONMENTAL PROTECTION AGENCY		
Eu	UNBALANCED SUPERELEVATION		
EW	ELLIS WEST SEGMENT		
EXIST, EX.	EXISTING EXTERIOR		
EXT			
FDN	FOUNDATION		
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY		
FG	FINISHED GRADE		
FIG	FIGURE		
FL	FLOW LINE		
FM	FARM TO MARKET ROAD		
FRS	FREIGHT RAIL SIDING		
FTG	FOOTING		
FWY	FREEWAY		
G	GRADIENT		
GEN	GENERAL		
H	HEIGHT, HIGHWAY BRIDGE		
HN	HOUSTON SEGMENT		
HNN	HOUSTON SEGMENT NORTH		
HNS	HOUSTON SEGMENT SOUTH		
HORIZ, H	HORIZONTAL		
HRW	HIGHWAY RETAINING WALL		
HSR	HIGH SPEED RAIL		
HT	HOUSTON TERMINUS SEGMENT		
HWY	HIGHWAY		
IH	INTERSTATE HIGHWAY		
ISH	INTERMEDIATE SIGNAL HOUSE		
KV	KILOVOLT		
L	LENGTH		
LN	LANE		
LOD	LIMITS OF DISTURBANCE		
LVC	LENGTH OF VERTICAL CURVE		
MAINT	MAINTENANCE		
MAX	MAXIMUM		
MOW	MAINTENANCE-OF-WAY		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MPH	MILES PER HOUR		
MSH	MAIN SIGNAL HOUSE		
NB	NORTHBOUND		
NE	NAVARRO EAST SEGMENT		
NED	NATIONAL ELEVATION DATASET		
NHD	NATIONAL HYDROGRAPHY DATASET		
NLCD	NATIONAL LAND COVER DATASET		
NO	NUMBER		
NTS	NOT TO SCALE		
N/A	NOT APPLICABLE		
NW	NAVARRO WEST SEGMENT, NOISE WALL		
NWI	NATIONAL WETLANDS INVENTORY		
NWIH	PORTION OF NAVARRO WEST ASSOCIATED WITH IH-45 SEGMENT		
OCS	OVERHEAD CATENARY SYSTEM		
OD	OUTSIDE DIAMETER		
OG	ORIGINAL GRADE		
OH	OVERHEAD		
OPP	OPPOSITE		
PKWY	PARKWAY		
POB	POINT OF BEGINNING		
POE	POINT OF END		
PVMT	PAVEMENT		
PVC	POINT VERTICAL CURVATURE		
PVI	POINT VERTICAL INTERSECTION		
PVT	POINT VERTICAL TANGENT		
R	RADIUS, RAIL BRIDGE		
RD	ROAD		
RDWY	ROADWAY		
RM	RANCH TO MARKET ROAD		
ROW	RIGHT OF WAY		
RR, R/R	RAILROAD		
RTE	ROUTE		
RWY	RAILWAY		
SC	SPIRAL CURVE		
SH	STATE HIGHWAY		
SO	SIDING OFF		
SP	SECTIONING POST		
SSH	SUB-SIGNAL HOUSE		
SSP	SUB-SECTIONING POST		
ST	STREET, SPIRAL TO TANGENT		
STA	STATION		
STD	STANDARD		
SYM	SYMMETRICAL		

PLAN



--- --- --- --- ---
CITY / COUNTY BOUNDARY LINE

--- --- --- --- ---
MATCH LINE

--- --- --- --- ---
CONCEPTUAL ENGINEERING LIMITS OF DISTURBANCE (LOD)

--- --- --- --- ---
PROPOSED CENTERLINE OF HIGH-SPEED RAIL WITH STATIONING

--- --- --- --- ---
EDGE OF VIADUCT

--- --- --- --- ---
PROPOSED ROADWAY EDGE OF PAVEMENT

--- --- --- --- ---
CONTOURS

--- --- --- --- ---
EXISTING TRANSMISSION LINE

--- --- --- --- ---
FENCE

--- --- --- --- ---
RETAINING WALL

--- --- --- --- ---
CULVERT

PROFILE

--- --- --- --- ---
TOP OF RAIL

--- --- --- --- ---
EXISTING GROUND

--- --- --- --- ---
FEMA 100 YR FLOOD LEVEL

--- --- --- --- ---
VIADUCT ABUTMENT AND STRUCTURE SOFFIT

--- --- --- --- ---
UTILITY CROSSING

UTILITY / PIPELINE

TEMPORARY CONSTRUCTION AREA

--- --- --- --- ---
UTILITY LIMIT OF DISTURBANCE (LOD)

--- --- --- --- ---
RAIL SYSTEMS SITE

--- --- --- --- ---
DETENTION BASIN

--- --- --- --- ---
BUILDING TO BE DEMOLISHED

--- --- --- --- ---
RAIL ON EMBANKMENT (FILL)

--- --- --- --- ---
RAIL IN CUT

EXISTING CROSSING
PROPOSED CROSSING
CROSSING REMOVED

NOTE:

1. FOR ADDITIONAL DETAIL REGARDING INFORMATION SHOWN ON DRAWINGS, SEE RAIL ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00010. SEE ROAD ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00011.

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DATE	09/15/2017



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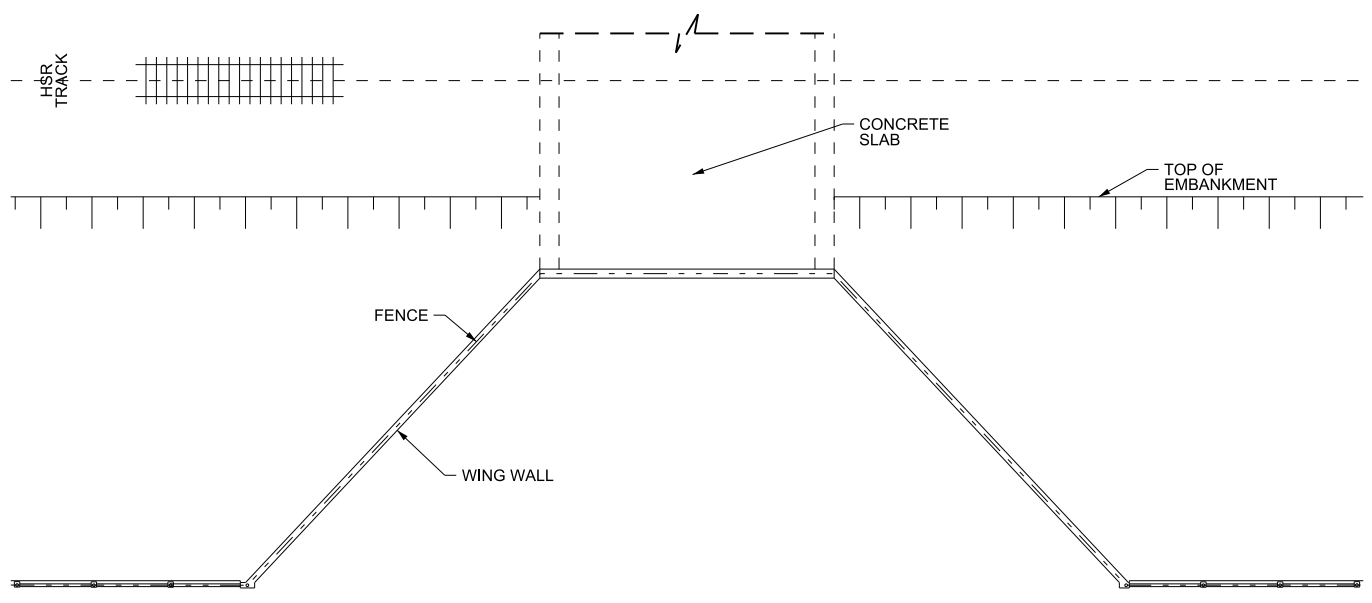


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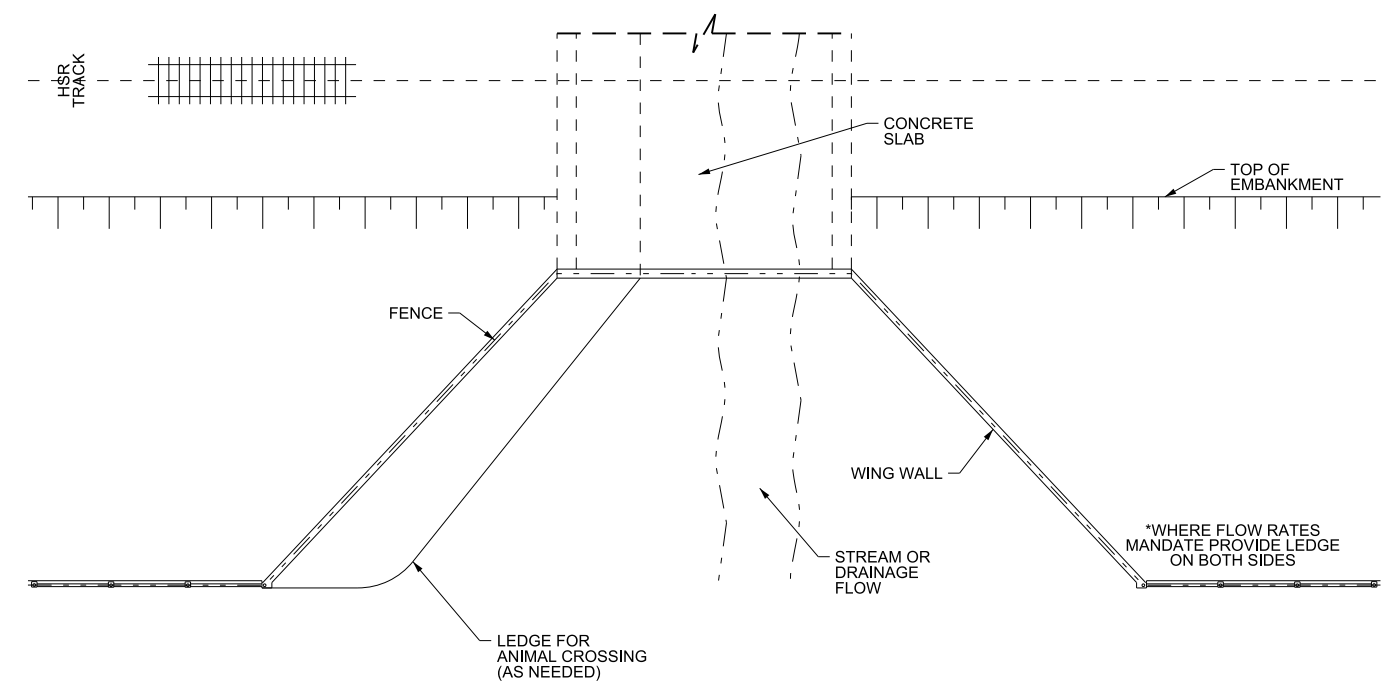
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234180	GEN-00-00009	01

5-1

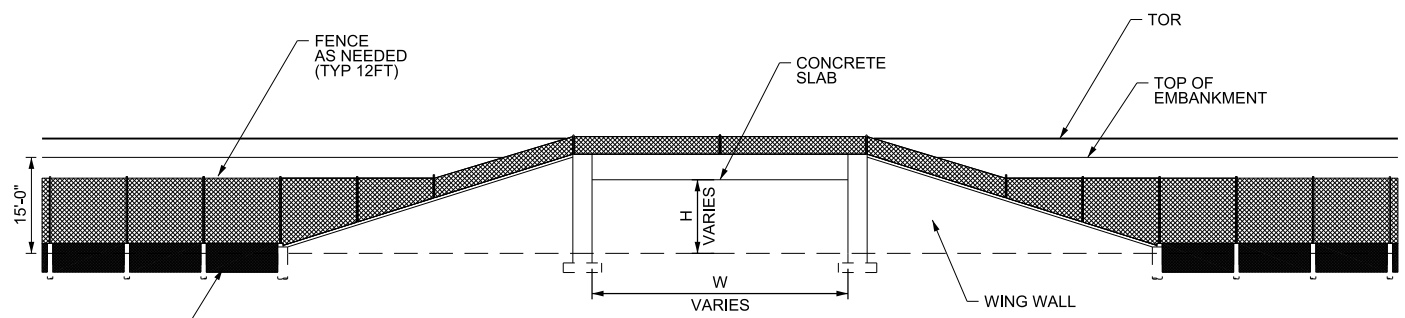
WILDLIFE CROSSING TYPICAL SECTIONS



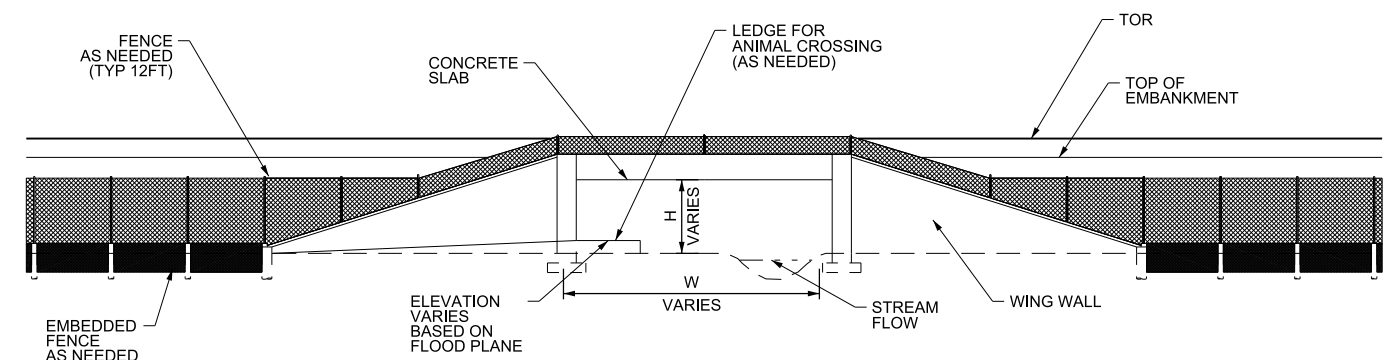
**DRYLAND CROSSING PLAN
CATTLE/LARGE WILDLIFE**



**STREAM CROSSING PLAN
CATTLE/LARGE WILDLIFE**



**DRYLAND CROSSING
CATTLE/LARGE WILDLIFE
TYPICAL SECTION**



**STREAM CROSSING
CATTLE/LARGE WILDLIFE
TYPICAL SECTION**

REV	DATE	BY	CHK	APP	DESCRIPTION

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R. ALDREDGE

DRAWN BY
M. KINZIR

CHECKED BY
R. ZARATE

IN CHARGE
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DATE



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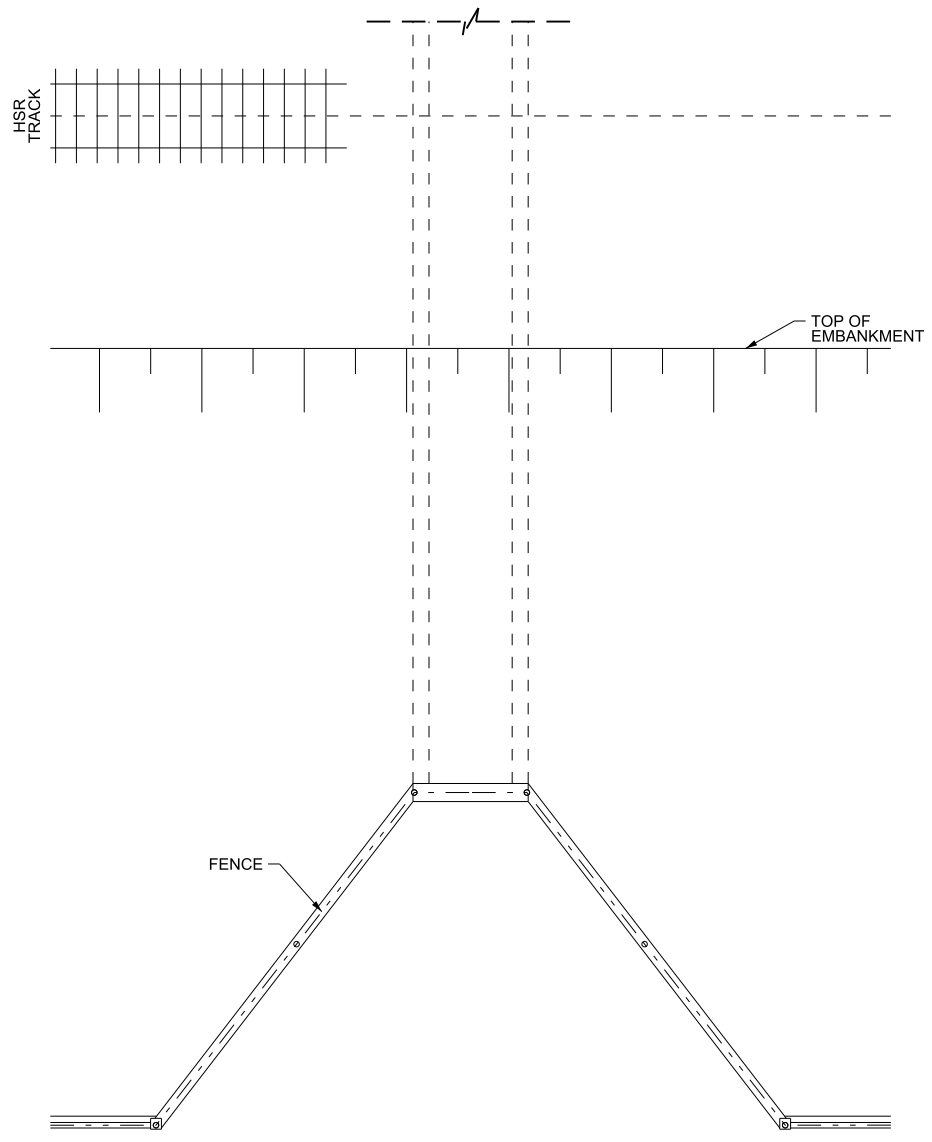
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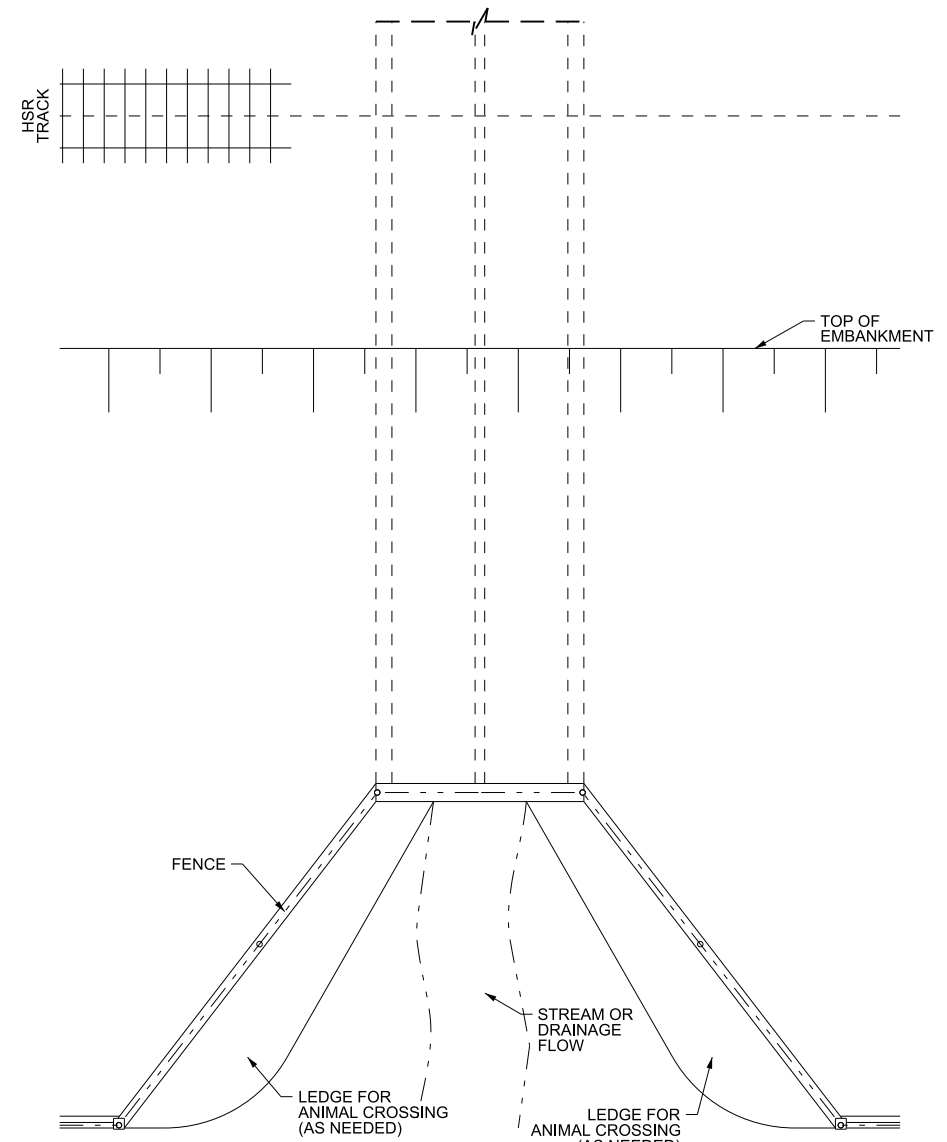
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**GENERAL WILDLIFE CROSSINGS
TYPICAL SECTION
SHEET 1 OF 2**

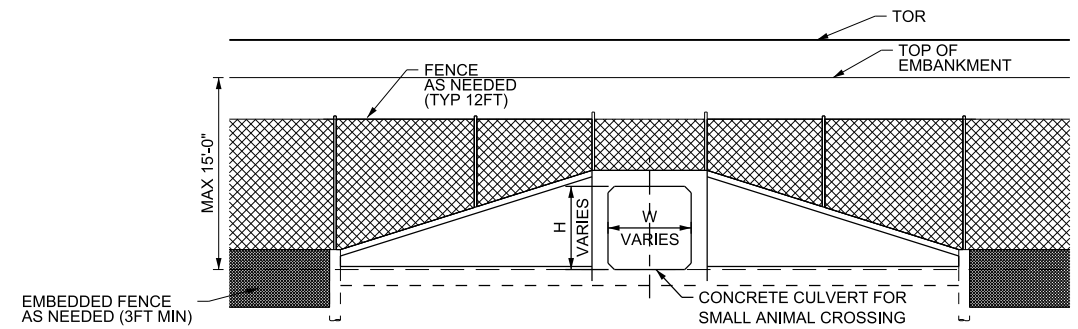
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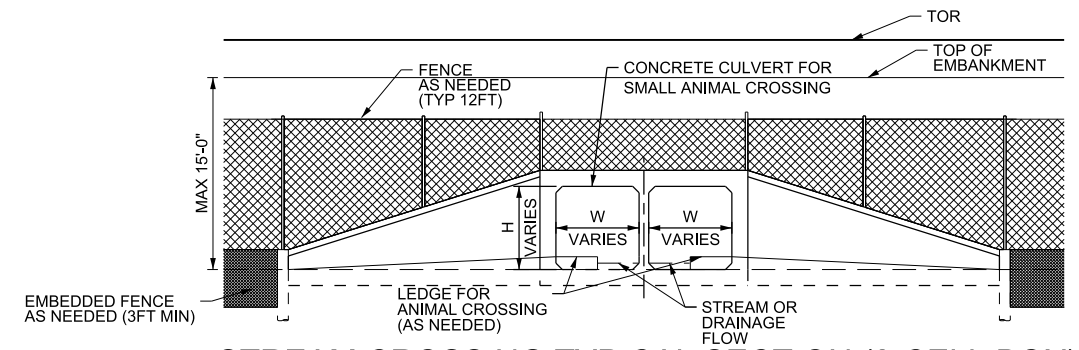
**DRYLAND CROSSING PLAN (SINGLE-CELL BOX)
SMALL ANIMAL (MAMMAL, REPTILE, OR AMPHIBIAN)**



**STREAM CROSSING PLAN (2-CELL BOX)
SMALL ANIMAL (MAMMAL, REPTILE, OR AMPHIBIAN)**



**DRYLAND CROSSING TYPICAL SECTION (2-CELL BOX)
SMALL ANIMAL (MAMMAL, REPTILE, OR AMPHIBIAN)**



**STREAM CROSSING TYPICAL SECTION (2-CELL BOX)
SMALL ANIMAL (MAMMAL, REPTILE, OR AMPHIBIAN)**

*BASED ON FLOW RATES A MORE COST EFFECTIVE ALTERNATIVE MAY BE RECOMMENDED

REV	DATE	BY	CHK	APP	DESCRIPTION

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DRAWN BY
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CHECKED BY
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IN CHARGE
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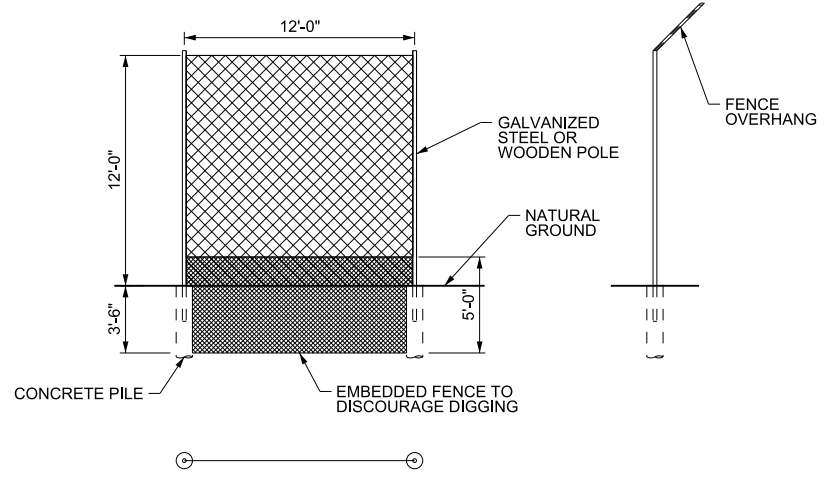
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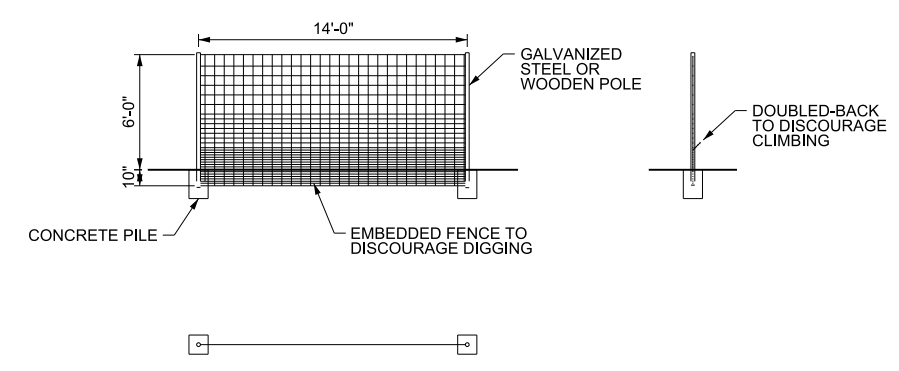
Client
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Drawing Title
**GENERAL WILDLIFE CROSSINGS
TYPICAL SECTION
SHEET 2 OF 2**

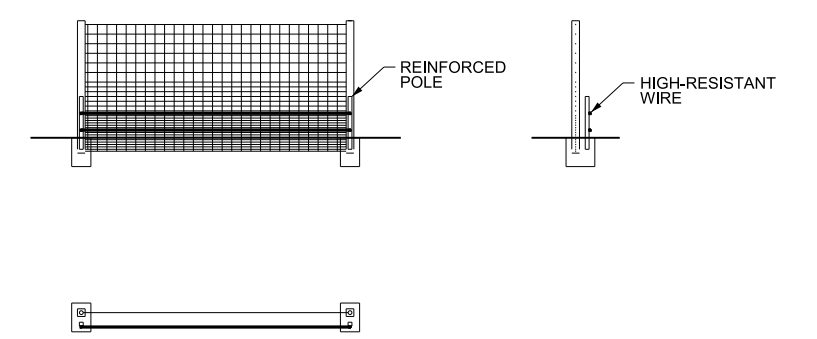
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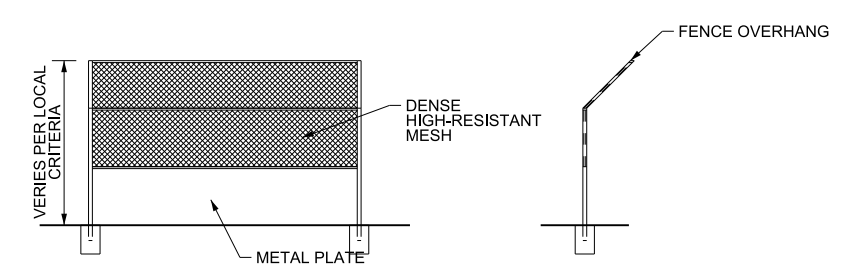
STANDARD FENCE FOR LARGE ANIMALS



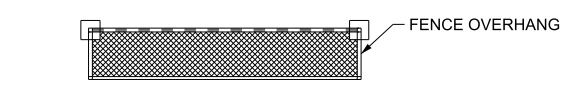
STANDARD FENCE FOR SMALL ANIMALS



REINFORCED FENCE



ANTI-VANDALISM FENCE



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. ALDREDGE

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M. KINZIR

CHECKED BY
R. ZARATE

IN CHARGE
C. TAYLOR

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Client

TEXAS CENTRAL

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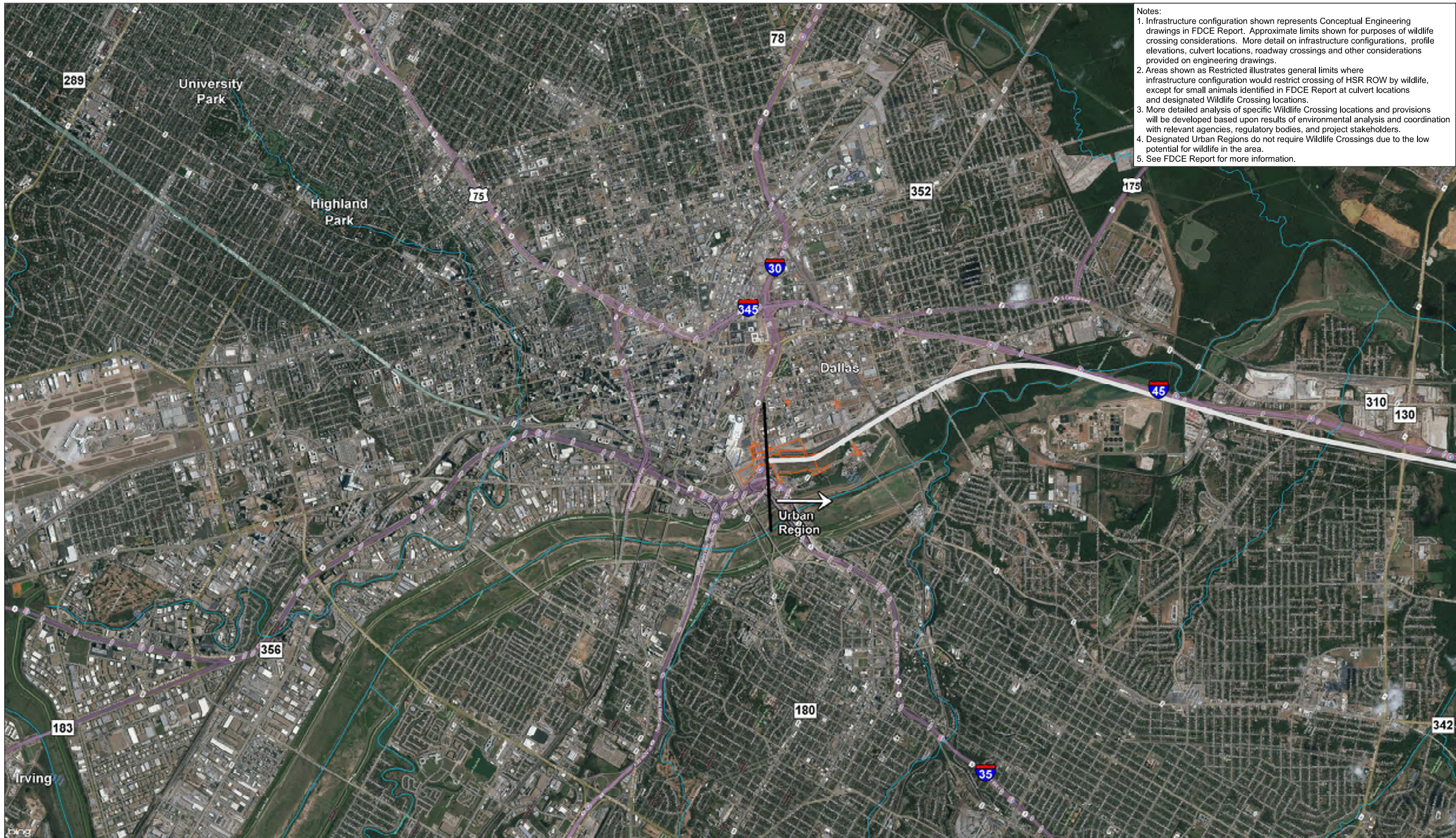
Drawing Title

GENERAL WILDLIFE CROSSINGS FENCE DETAILS

Scale
1" = 10'

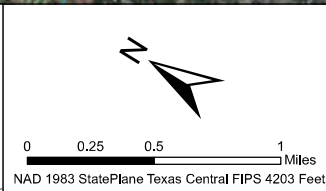
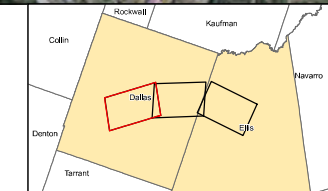
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Job No	Drawing No	Rev
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- Notes:
1. Infrastructure configuration shown represents Conceptual Engineering drawings in FDCE Report. Approximate limits shown for purposes of wildlife crossing considerations. More detail on infrastructure configurations, profile elevations, culvert locations, roadway crossings and other considerations provided on engineering drawings.
 2. Areas shown as Restricted illustrates general limits where infrastructure configuration would restrict crossing of HSR ROW by wildlife, except for small animals identified in FDCE Report at culvert locations and designated Wildlife Crossing locations.
 3. More detailed analysis of specific Wildlife Crossing locations and provisions will be developed based upon results of environmental analysis and coordination with relevant agencies, regulatory bodies, and project stakeholders.
 4. Designated Urban Regions do not require Wildlife Crossings due to the low potential for wildlife in the area.
 5. See FDCE Report for more information.

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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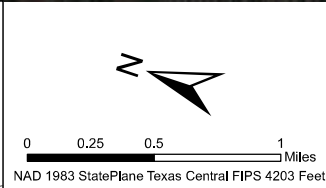
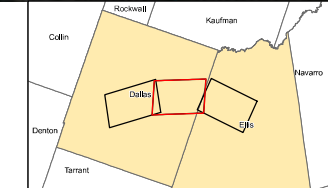
DS Segment
THSR
Potential Wildlife
Crossings
Sheet 1 of 38

File Name Dallas_WildlifeCrossings.mxd		Date 9/15/2017
Status Final Draft		Drawn By MK
Job No 234180-00	Drawing WLC-00-4003	Rev P1



- Notes:
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NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DS Segment
THSR
Potential Wildlife
Crossings
Sheet 2 of 38

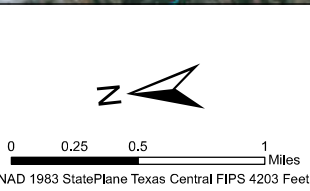
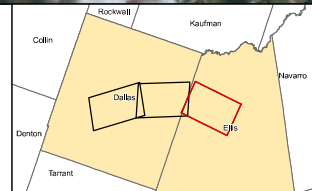
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Status Final Draft	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-00-4004	



- Notes:
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Limit of Dallas Segment For Continuation, See Ellis East or Ellis West Segments

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DS Segment
THSR
Potential Wildlife
Crossings
Sheet 3 of 38

File Name Dallas_WildlifeCrossings.mxd		Date 9/15/2017
Status Final Draft		Drawn By MK
Job No 234180-00	Drawing WLC-00-4005	Rev P1

- Notes:
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 5. See FDCE Report for more information.

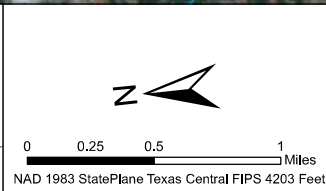
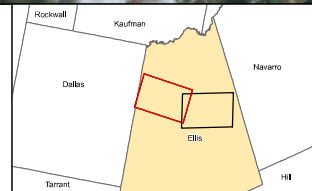


Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted

Legend

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities



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EE Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 4 of 38

File Name EllisEast_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4006
	Rev P1

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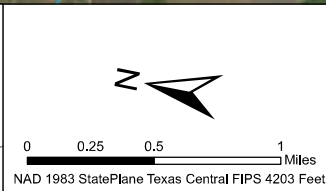
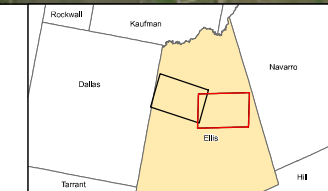
Limit of Ellis East Segment
For Continuation, See
Navarro East, Navarro
West or I45 Segments

Legend

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities

Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted



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EE Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 5 of 38

File Name EllisEast_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4007
	Rev P1

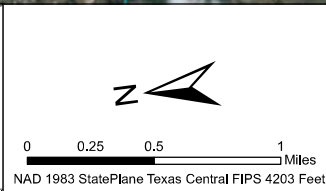
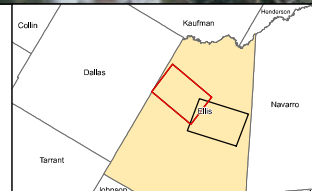
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 5. See FDCE Report for more information.

Limit of Ellis West Segment
For Continuation, See
Dallas Segment

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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**EW Segment
THSR
Potential Wildlife
Crossings
Sheet 6 of 38**

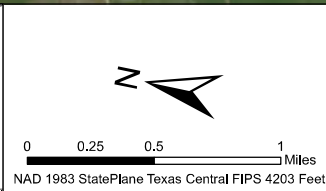
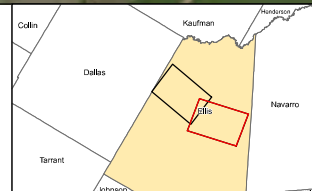
File Name EllisWest_WildlifeCrossings.mxd		Date 9/15/2017
Status Final Draft		Drawn By MK
Job No 234180-00	Drawing WLC-00-4008	Rev P1



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 5. See FDCE Report for more information.

Limit of Ellis West Segment For Continuation, See Navarro East, Navarro West or I45 Segments

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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**EW Segment
THSR
Potential Wildlife
Crossings
Sheet 7 of 38**

File Name EllisWest_WildlifeCrossings.mxd		Date 9/15/2017
Status Final Draft		Drawn By MK
Job No 234180-00	Drawing WLC-00-4009	Rev P1



- Notes:
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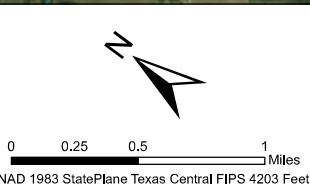
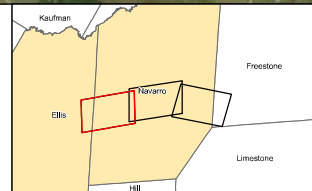
Limit of Navarro East Segment For Continuation, See Ellis East or Ellis West Segments

Legend

- NHD Streams
- Segment Breaklines
- County Boundaries

Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted



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NE Segment THSR
 Potential Wildlife Crossings
 Sheet 8 of 38

File Name NavarroEast_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4010
	Rev P1



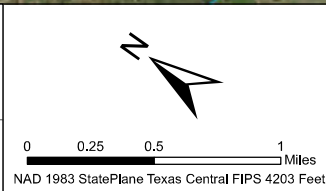
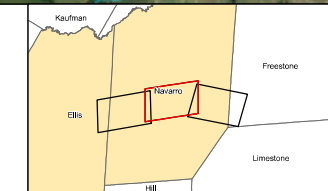
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Legend

- NHD Streams
- Segment Breaklines
- County Boundaries

Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted



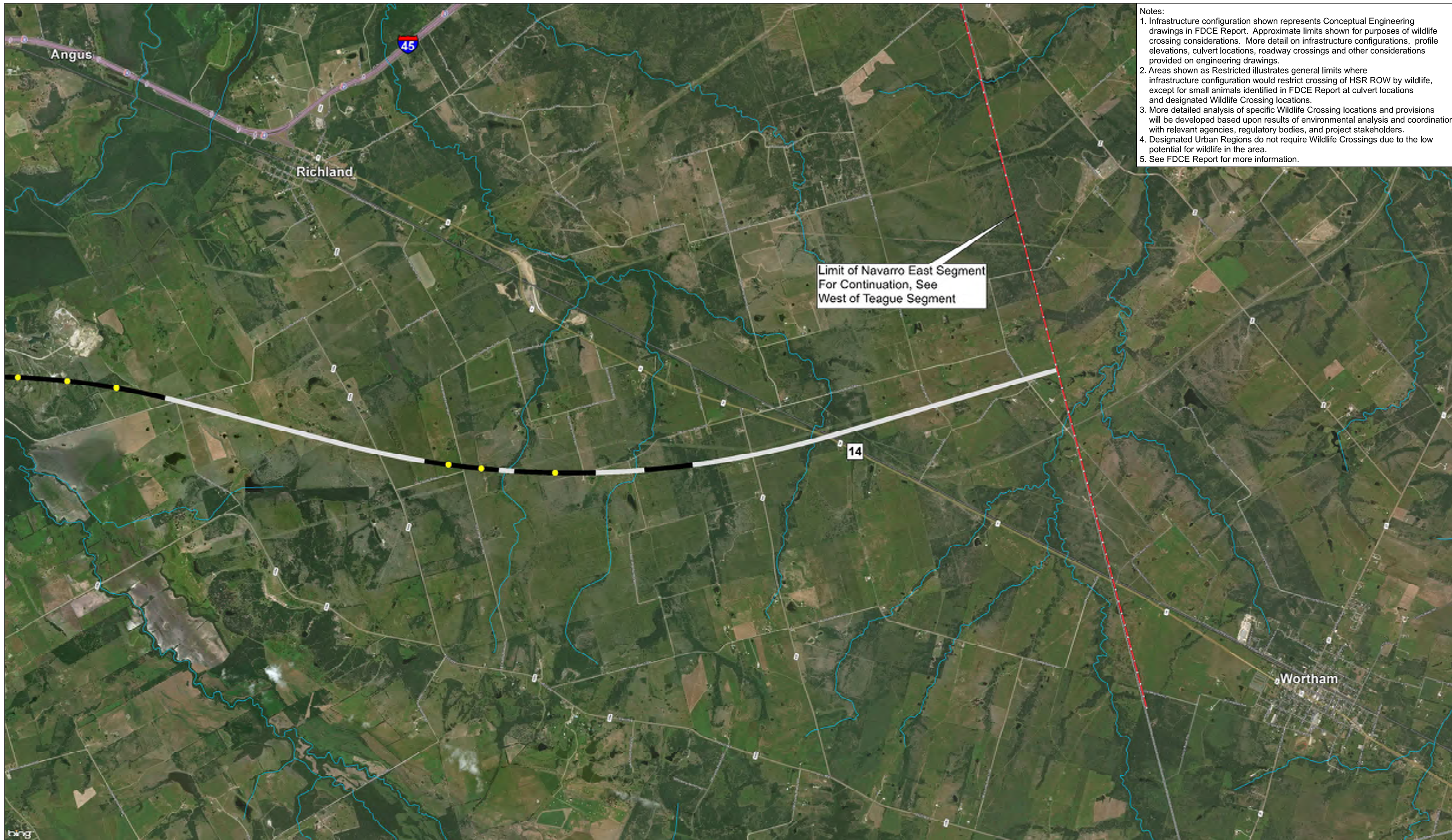
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NE Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 9 of 38

File Name NavarroEast_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4011
	Rev P1

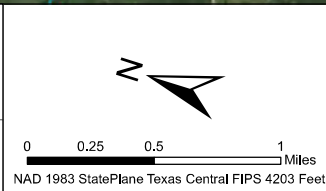
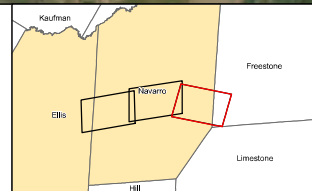


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Limit of Navarro East Segment
For Continuation, See
West of Teague Segment

NHD Streams
 Segment Breaklines
 County Boundaries

Wildlife Movement
 Potential Wildlife Crossing
 Unrestricted
 Restricted



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NE Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 10 of 38

File Name NavarroEast_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4012
	Rev P1

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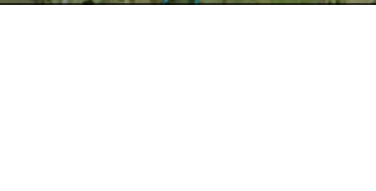


Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted

Legend

- NHD Streams
- Segment Breaklines
- County Boundaries



Scale

0 0.25 0.5 1 Miles

NAD 1983 StatePlane Texas Central FIPS 4203 Feet

North Arrow

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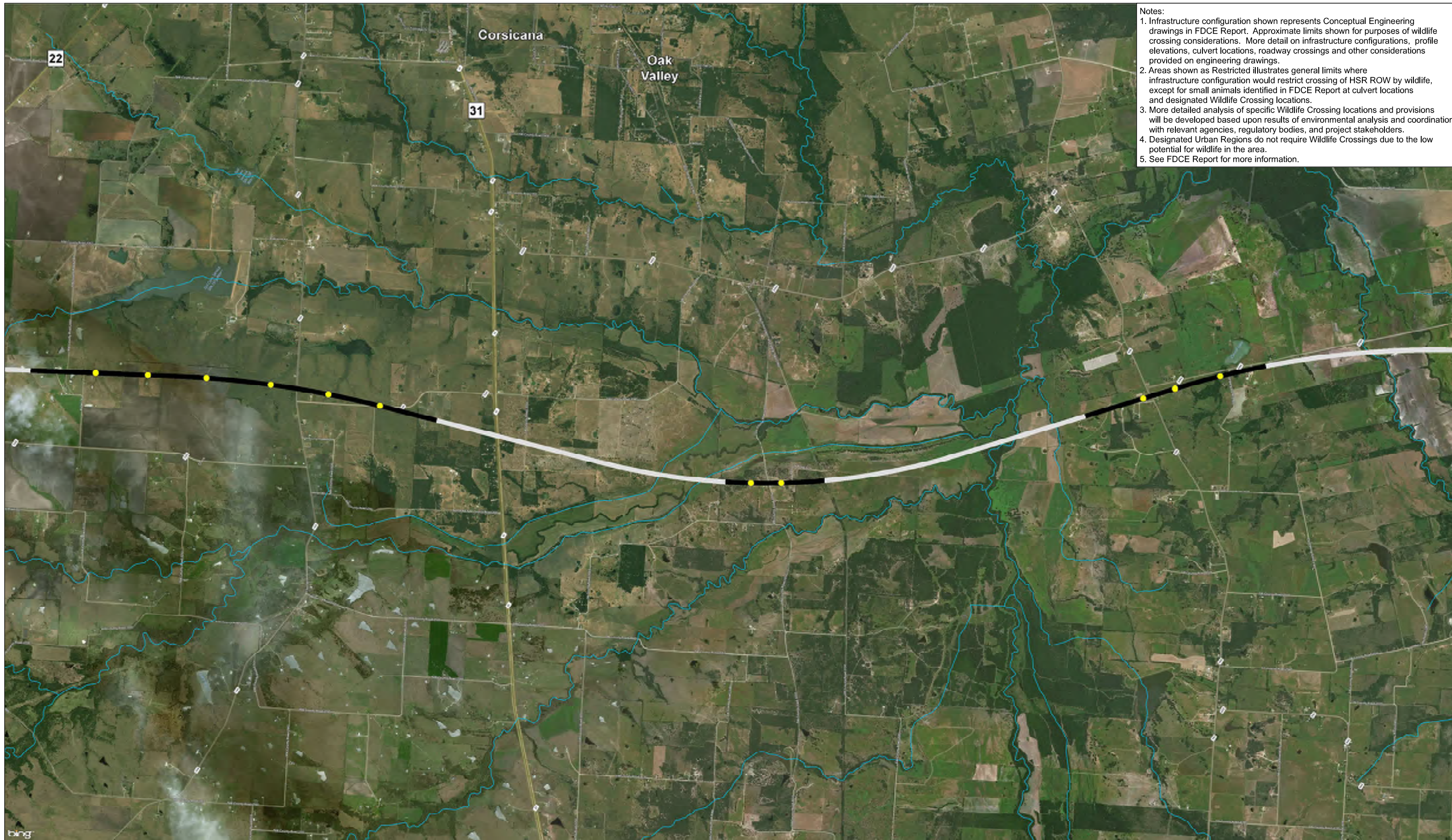
TEXAS CENTRAL

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NW Segment THSR Potential Wildlife Crossings

Sheet 11 of 38

File Name NavarroWest_WildlifeCrossings.mxd	Date 9/15/2017
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Job No 234180-00	Drawing WLC-00-4013
	Rev P1



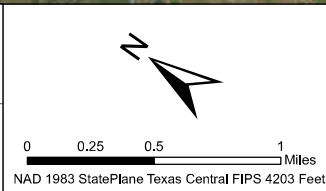
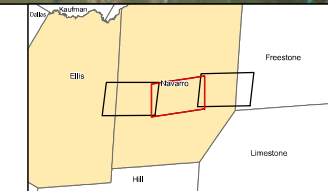
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Legend

- NHD Streams
- Segment Breaklines
- County Boundaries

Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted



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NW Segment THSR
 Potential Wildlife Crossings
 Sheet 12 of 38

File Name NavarroWest_WildlifeCrossings.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4014
	Rev P1

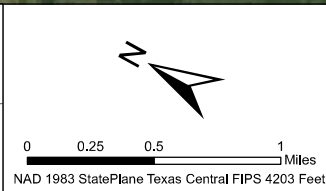
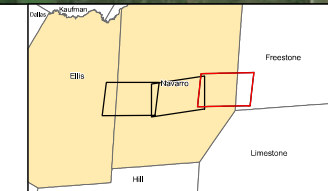


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Limit of Navarro West Segment
For Continuation, See
West of Teague Segment

Wildlife Movement

- NHD Streams
- Segment Breaklines
- County Boundaries
- Potential Wildlife Crossing
- Unrestricted
- Restricted



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NW Segment
THSR
Potential Wildlife
Crossings
Sheet 13 of 38

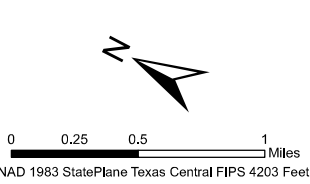
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Job No 234180-00	Drawing WLC-00-4015
	Rev P1



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NHD Streams
 Segment Breaklines
 County Boundaries
 Stations and Maintenance Facilities

Wildlife Movement
 Potential Wildlife Crossing
 Unrestricted
 Restricted



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TEXAS CENTRAL
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IH Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 14 of 38

File Name 45_WildlifeCrossings_Alt2.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4016
	Rev P1

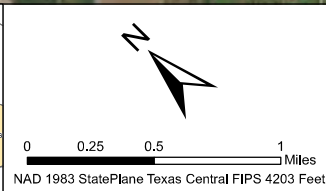
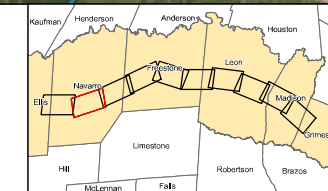


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NHD Streams
 Segment Breaklines
 County Boundaries
 Stations and Maintenance Facilities

Wildlife Movement
 Potential Wildlife Crossing
 Unrestricted
 Restricted



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IH Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 15 of 38

File Name 45_WildlifeCrossings_Alt2.mxd	Date 9/15/2017
Status Final Draft	Drawn By MK
Job No 234180-00	Drawing WLC-00-4017
	Rev P1